Chapter 1
Introduction

1-1. Overview

a. Flood warning - preparedness programs are designed so that flood emergency response actions are conducted efficiently and in an organized manner. These programs reduce the risk to life and, to some extent, reduce the damage potential during flood episodes. Flood warning - preparedness programs do not prevent flood disasters but do enable institutional and public emergency response actions to be conducted effectively. Many institutional arrangements required for implementing flood warning - preparedness programs are similar to those for other disasters.

b. Flood warning - preparedness programs are viable flood damage reduction measures that serve as stand-alone measures when other alternatives are not feasible, components to other measures, or interim measures until other structural or nonstructural alternatives are implemented. Flood warning - preparedness programs are coordinated actions that include flood-threat recognition, warning dissemination, emergency response, postflood recovery, and continued plan management.

c. A flood warning - preparedness program may reduce the risk to life and temporarily modify flood damage susceptibility. These measures must be considered in the formulation of any flood damage reduction plan (ER 1105-2-100). Under feasibility investigations, flood warning - preparedness programs cost sharing includes: determination of the flood hazard; selection, siting, installation, and hardware and equipment; and definition of threatened area. It does not include the development of emergency response plans that are local responsibilities. Under the Flood Plain Management Services (FPMS) program, the Corps provides technical assistance to local communities for developing flood warning - preparedness programs upon request. The Corps can provide assistance in developing response plans, but the local sponsor is responsible for purchasing required hardware and software.

d. Hydrologic analyses are important in evaluating the feasibility of implementing flood warning - preparedness programs and to ensure their validity of operation on a real-time basis during flood events. For feasibility studies, the base conditions and enhancements are determined and compared. Base condition analyses estimate the nature of the flood hazard for a range of events (magnitude, frequency, inundation boundaries, velocities, depths, and warning times). These analyses determine impacts to threatened properties, vital services, and define the existing flood warning - preparedness program activities and operations. Hydrologic analyses are integral to this analysis. Enhanced condition analyses include arrangements, equipment, hardware/software, and actions that yield better responses. The analyses may include enhanced and more reliable warnings, better warning dissemination, and response actions that reduce the threat to people and property damage.

e. This manual describes the components and terminology involved with a flood warning - preparedness program. It provides a guide for planning, design, and implementation of flood warning - preparedness programs associated with flood damage reduction studies. Emphasis is on the hydrologic engineering analysis requirements of evaluating and implementing flood warning-emergency response programs.

1-2. Organization

This document is organized in the sequence of topics needed to formulate and evaluate a flood warning - preparedness program. These topics include general concepts, defining the problem, developing alternative solutions, and recommending a plan for implementation. Chapter 2 describes general concepts of flood warning - preparedness programs. Chapter 3 describes how to define existing or base conditions. Chapter 4 describes how to review and recommend enhancements to the base condition. Chapter 5 describes flood warning - preparedness plan implementation, operation, and maintenance. Appendix A is a list of references, and Appendix B is a glossary of terms. Appendix C includes information on rain gage exposure published by the National Weather Service (NWS). Appendix D includes an example quantitative precipitation forecast (QPF). Appendix` E contains sample initial costs for an automated flood-threat recognition system, respectively.